

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Stuart D. Downes
Serial No.: Unassigned
For: SYSTEMS AND METHODS FOR DISTRIBUTING COLDER
PASTE USING A TOOL HAVING A SOLDER PASTE APERTURE
WITH A NON-CIRCULAR CROSS-SECTIONAL SHAPE
Filing Date: February 26, 2002
Examiner: Unassigned
Art Unit: Unassigned

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BOX PATENT APPLICATION
Assistant Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

Prior to examination and calculation of the fees, please enter this
Preliminary Amendment.

CLAIMS

Please cancel claims 1-12 without prejudice.

Please enter the following claims which are further shown in the attached Appendix with markings to show the changes made:

21. The method of claim 13 wherein the solder paste distribution tool includes a distribution member having a top surface and a bottom surface, wherein the solder paste distribution tool defines a top opening at the top surface and a bottom opening at the bottom surface, wherein the solder paste aperture extends from the top opening at the top surface to the bottom opening at the bottom surface, and wherein the step of applying the solder paste includes the step of:

passing the portion of the solder paste onto the mounting location of the circuit board through the top opening at the top surface and the bottom opening at the bottom surface.

22. The method of claim 21 wherein the distribution member further defines an aperture surface that extends from the top opening at the top surface to the bottom opening at the bottom surface, wherein the aperture surface is substantially non-perpendicular with the top and bottom surfaces of the distribution member, and wherein the step of positioning the solder paste distribution tool includes the step of:

orienting the solder paste distribution tool such that the aperture surface is substantially non-perpendicular with the mounting location of the circuit board when the top and bottom surfaces of the distribution member are substantially parallel to the mounting location of the circuit board.

23. The method of claim 19 wherein the step of providing the distribution member includes the step of:
- supplying the distribution member such that (i) the distribution member defines a top opening at a top surface of the distribution member and a bottom opening at a bottom surface of the distribution member, and
 - (ii) the solder paste aperture extends from the top opening to the bottom opening.
24. The method of claim 23 wherein the step of supplying includes the step of:
- furnishing the distribution member such that the distribution member further defines an aperture surface that extends from the top opening at the top surface of the distribution member to the bottom opening at the bottom surface of the distribution member, and wherein the aperture surface is substantially non-perpendicular with the top and bottom surfaces of the distribution member.
25. A method for distributing solder paste onto a mounting location of a circuit board, comprising the steps of:
- positioning a solder paste distribution tool over a mounting location of the circuit board, the solder paste distribution tool defining a solder paste aperture having a non-circular cross-sectional shape;
 - applying solder paste to the mounting location of the circuit board through the solder paste distribution tool such that a portion of the solder paste passes onto the mounting location through the solder paste aperture having the non-circular cross-sectional shape; and
 - removing the solder paste distribution tool from the mounting location.

26. The method of claim 25 wherein the solder paste distribution tool includes a distribution member having a top surface and a bottom surface, wherein the solder paste distribution tool defines a top opening at the top surface and a bottom opening at the bottom surface, wherein the solder paste aperture extends from the top opening at the top surface to the bottom opening at the bottom surface, and wherein the step of applying the solder paste includes the step of:

passing the portion of the solder paste onto the mounting location of the circuit board through the top opening at the top surface and the bottom opening at the bottom surface.

27. The method of claim 26 wherein the distribution member further defines an aperture surface that extends from the top opening at the top surface to the bottom opening at the bottom surface, wherein the aperture surface is substantially non-perpendicular with the top and bottom surfaces of the distribution member, and wherein the step of positioning the solder paste distribution tool includes the step of:

orienting the solder paste distribution tool such that the aperture surface is substantially non-perpendicular with the mounting location of the circuit board when the top and bottom surfaces of the distribution member are substantially parallel to the mounting location of the circuit board.

REMARKS

Claims 1-20 were pending in this Application. By this Preliminary Amendment and prior to examination and calculation of the fees, claims 1-12 have been canceled without prejudice, and claims 21-27 have been added. Accordingly, Claims 13-27 are now pending and under consideration in this Application. Claims 13, 19 and 25 are independent claims.

Newly Added Claims

Claims 21-27 are newly added and are believed to be in allowable condition. Support for features recited in claims 21-27 can be found in the Specification, for example, on page 10, line 4 through page 11, line 3 and in Figs 3A and 3B. No new matter has been added.

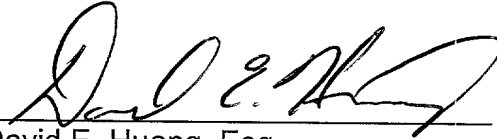
Conclusion

Favorable consideration of the Application is respectfully requested. If the Examiner believes, after this Preliminary Amendment, that the Application is not in condition for allowance, the Examiner is respectfully requested to call the Applicant's Representative at the number below.

If there is a fee occasioned by this Preliminary Amendment that is not covered by an enclosed check, please charge this fee to Deposit Account No. 50-0901.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,



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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

The claims are amended as follows:

21. (Newly Added) The method of claim 13 wherein the solder paste distribution tool includes a distribution member having a top surface and a bottom surface, wherein the solder paste distribution tool defines a top opening at the top surface and a bottom opening at the bottom surface, wherein the solder paste aperture extends from the top opening at the top surface to the bottom opening at the bottom surface, and wherein the step of applying the solder paste includes the step of:
- passing the portion of the solder paste onto the mounting location of the circuit board through the top opening at the top surface and the bottom opening at the bottom surface.
22. (Newly Added) The method of claim 21 wherein the distribution member further defines an aperture surface that extends from the top opening at the top surface to the bottom opening at the bottom surface, wherein the aperture surface is substantially non-perpendicular with the top and bottom surfaces of the distribution member, and wherein the step of positioning the solder paste distribution tool includes the step of:
- orienting the solder paste distribution tool such that the aperture surface is substantially non-perpendicular with the mounting location of the circuit board when the top and bottom surfaces of the distribution member are substantially parallel to the mounting location of the circuit board.

23. (Newly Added) The method of claim 19 wherein the step of providing the distribution member includes the step of:

supplying the distribution member such that (i) the distribution member defines a top opening at a top surface of the distribution member and a bottom opening at a bottom surface of the distribution member, and (ii) the solder paste aperture extends from the top opening to the bottom opening.

24. (Newly Added) The method of claim 23 wherein the step of supplying includes the step of:

furnishing the distribution member such that the distribution member further defines an aperture surface that extends from the top opening at the top surface of the distribution member to the bottom opening at the bottom surface of the distribution member, and wherein the aperture surface is substantially non-perpendicular with the top and bottom surfaces of the distribution member.

25. (Newly Added) A method for distributing solder paste onto a mounting location of a circuit board, comprising the steps of:

positioning a solder paste distribution tool over a mounting location of the circuit board, the solder paste distribution tool defining a solder paste aperture having a non-circular cross-sectional shape;

applying solder paste to the mounting location of the circuit board through the solder paste distribution tool such that a portion of the solder paste passes onto the mounting location through the solder paste aperture having the non-circular cross-sectional shape; and

removing the solder paste distribution tool from the mounting location.

26. (Newly Added) The method of claim 25 wherein the solder paste distribution tool includes a distribution member having a top surface and a bottom surface, wherein the solder paste distribution tool defines a top opening at the top surface and a bottom opening at the bottom surface, wherein the solder paste aperture extends from the top opening at the top surface to the bottom opening at the bottom surface, and wherein the step of applying the solder paste includes the step of:

passing the portion of the solder paste onto the mounting location of the circuit board through the top opening at the top surface and the bottom opening at the bottom surface.

27. (Newly Added) The method of claim 26 wherein the distribution member further defines an aperture surface that extends from the top opening at the top surface to the bottom opening at the bottom surface, wherein the aperture surface is substantially non-perpendicular with the top and bottom surfaces of the distribution member, and wherein the step of positioning the solder paste distribution tool includes the step of:

orienting the solder paste distribution tool such that the aperture surface is substantially non-perpendicular with the mounting location of the circuit board when the top and bottom surfaces of the distribution member are substantially parallel to the mounting location of the circuit board.